

### **REMARKS/ARGUMENTS**

The present Amendment amends claim 1, cancels claim 4, and adds claim 23. Upon entry of this Amendment, claims 1-3 and 5-23 will be pending. Accordingly, the application currently presents twenty-two (22) total claims, of which three (3) are in independent form (claims 1, 15, and 23). In light of the request for two months of extension, Applicant expects a fee of \$230 to be due, which is being paid electronically with submittal of this Amendment. For any other fees which are deemed necessary following submittal of this Amendment, the undersigned hereby authorizes such fees to be charged to our deposit account, Deposit Account No. 061910.

#### **Double Patenting Rejections**

Claims 1-22 stand rejected under the judicially-created doctrine of obviousness-type double patenting. The double patenting rejection is acknowledged. However, as claims 1-22 are further rejected under U.S.C. 102(b) and 103(a), as described below, and since the conflicting claims 27-51 of copending Application No. 10/538,416 have not in fact been patented, Applicants choose to hold off on addressing the double patenting rejections for the time being and instead only address the 102(b) and 103(a) rejections herein. Applicants respectfully traverse the rejections of claims 1-22 under the judicially created doctrine of obviousness-type double patenting. However, if Applicants' arguments herein are found to overcome one or more of the standing 102(b) and 103(a) rejections, Applicants are willing to consider advancing prosecution of this Application by filing a terminal disclaimer in compliance with 37 CFR 1.321(c) to subsequently overcome the double patenting rejections.

#### **Claim Rejections under 35 U.S.C. 102(b) and 103(a)**

Claims 1, 2, 6-8, 12, 13, 15, 17-19, 21, and 22 currently stand rejected under 35 U.S.C. 102(b) as being anticipated by Quan et al. (U.S. Pat. No. 4,794,217). In addition, claims 3-5, 9-11, 14, 16, and 20 currently stand rejected under 35 U.S.C. 103(a) as being unpatentable over Quan in view of one of a variety of further references cited by the Examiner. Following a review of the cited references, Applicants believe that none of the references solves the technical

problem (set out in the present application) of keeping the top and bottom walls of the treatment chamber very well electrically insulated. Further, Applicants believe that none of the references teaches or contemplates the side walls of the treatment chamber to have a piece that is an electric insulating and refractory material.

Accordingly, Applicants respectfully traverse the standing 102(b) and 103(a) rejections; however, to advance prosecution of this Application, Applicants have made amendments to claim 1. As a result, Applicants respectfully submit that, to one skilled in the art, claim 1 would neither be anticipated by Quan et al. (U.S. Pat. No. 4,794,217) nor be unpatentable in light of Quan et al. in view of any of Kordina et al. (U.S. Pat. No. 5,695,567), Kaeppler et al. (WO 02/38838 using U.S. Pat. No. 7,048,802 as its English translation), Kaeppler et al. (WO 02/38839), or Electricity Council (GB-A 1 458 222). In particular, as amended, claim 1 now provides the inert, refractory and electrically material of at least one piece of the right-hand side wall (4) and at least one piece of the left-hand side wall (5) as being "silicon carbide or boron nitride" (two very good electric insulating materials and very good refractory materials).

#### Response to Rejections

Regarding the 35 U.S.C. 102(b) rejection of claim 1, after reviewing Quan, Applicant finds that the device disclosed therein comprises two graphite plates 8, which are used in conjunction to heat wafers (Fig. 5, col. 7, lines 24-30). One skilled in the art would recognize that these two graphite plates 8 form the susceptor and delimit the wafer treatment chamber.

While Examiner interprets the further housing 25 of Quan (further shown in Fig. 5 as surrounding the two graphite plates 8) to form sides walls of the wafer treatment chamber, Applicants respectfully disagree with this interpretation. Instead, the housing 25 corresponds to a refractory and thermally insulating structure surrounding the wafer treatment chamber (see Fig. 5). Such a corresponding structure is referenced as 7 in Figure 1 of the present application, with corresponding description on page 11, last paragraph of the specification.

To Examiner's point regarding the composition of the housing 25 of Quan (starting on the bottom of page 8 of the Office Action and ending on the top of page 9), it is well known in the art to enclose the wafer treatment chamber within a thermally insulating structure, preferably made of quartz (as adopted by the teachings of Quan) to avoid heat losses through the reactor walls. Thus, Applicants assert that this type of thermally insulating structure that has long been

known and used in susceptor systems for enclosing wafer treatment chambers is exactly what the housing 25 of Quan represents. To this end, such a structure like the housing 25 of Quan would not be confused by the skilled artisan as forming part of the wafer treatment chamber.

In further support of this position, Applicants note that the inner walls of the housing 25 in Quan are "coated by a dielectric film which reflects infrared radiation" (col. 7, lines 39-41), with the material of the film being proposed as silicon nitride (col. 8, lines 29-31). Such infrared light reflecting property of the film would further lead a skilled artisan to logically conclude that Quan was interested in constructing the type of thermally insulating structure that has long been known and used in susceptor systems for enclosing wafer treatment chambers. However, even if, *arguendo*, the film of the housing 25 was to be interpreted to be an inert, refractory and electrically insulating material of each of the right-hand and left-hand side walls (4 and 5), as provided in claim 1; claim 1 further specifies the material to form "at least a piece" of the walls, while Quan's "film" is not equivalent to a "piece" and even less to a whole "wall".

Thus, Applicants respectfully assert that Quan neither teaches nor contemplates a treatment chamber provided with at least a piece of its side walls being made of insulating and refractory material, thereby not anticipatory of claim 1. Further, even assuming, *arguendo*, that the side walls of the housing 25 of Quan were to be interpreted as part of the wafer treatment chamber, no piece of the side walls of housing 25 are constructed of silicon carbide or boron nitride, thus clearly falling outside what is now required in amended claim 1.

In reviewing the other cited art from Examiner's 35 U.S.C. 103(a) rejections, this art does not seem to address the above-described deficiencies with respect to Quan. For example, Kaeppler et al. (WO 02/38838 using U.S. Pat. No. 7,048,802 as its English translation) is used, regarding susceptor systems, for its presumed teachings (i) to provide grooves and/or ribs in a piece of an upper wall and/or a piece of a lower wall for joining with pieces of side walls and (ii) to provide a first refractory and thermally insulating structure which surrounds the susceptor system and is constituted substantially by a tube of high-porosity graphite. In addition, Kaeppler et al. (WO 02/38839) is used, regarding susceptor systems, for its presumed teachings (i) to provide a recess and disc in a susceptor and (ii) to provide a through hole used as a means to transport gas through the susceptor. Further, Electricity Council (GB-A 1 458 222) is used, regarding susceptor systems, for its presumed teaching to provide a piece of an upper wall and/or

a piece of a lower wall hollow, i.e., so as to have at least one hole, preferably a through hole, which extends in the longitudinal direction.

Regarding the 35 U.S.C. 103(a) rejections involving Quan and Kordina, Kordina appears to teach covering the graphite wall pieces 11, 12, 13, and 14 of the treatment chamber by a thin SiC coating (for example, in Fig. 4, with reference to col. 5, lines 46-50). Using the same reasoning as described above, Applicants respectfully assert that the thin SiC coating would not be equivalent to a "piece" (as provided by claim 1), much less a "wall". However, Kordina also teaches away from the present application, as the lateral walls 11, 12 of the treatment chamber are formed of graphite (an electrically conductive material). Because of this, electricity flow (due to the induction system of the reactor) can take place in these lateral walls (and may heat the walls), giving place to possible current loops, even if these lateral walls are covered as a shield. In contrast, claim 1 provides for at least a piece of the right-hand and left-hand side walls (4 and 5) to be constituted of an inert, refractory and electrically insulating material so that the or each piece of the upper wall (2) is electrically insulated from the or each piece of the lower wall (3). Thus, one skilled in the art would not look to Kordina to address the above-described deficiencies with respect to Quan either.

Applicant asserts that upon entry of this Amendment, the claims are hereby in condition for allowance. For the above reasons, Applicants believes claim 1, as now amended, should be allowed. In turn, the allowance of claim 1 thereby renders 2-3 and 5-14 also allowable. The allowance of claim 1 shall also render claim 15 allowable, as claim 15 has all the same features of claim 1. In turn, the allowance of claim 15 thereby renders claims 16-22 also allowable. Favorable consideration and prompt allowance of the application are respectfully requested.

### **New Claim**

Claim 23 has been added and is believed to be patentable in light of the references cited by Examiner, as it includes the features of now amended claim 1.

### **Conclusion**

Applicant believes that no new matter will be introduced by entry of these amendments and that the amendments are fully supported by the specification and application as a whole.

Applicant has amended the claims solely to advance prosecution of this application and to obtain the allowance of claims at the earliest possible date. No admission should be inferred by these amendments. Applicant reserves the right to prosecute the originally filed claims in a continuation application.

In light of the above, Applicant respectfully submits that the present rejections should be withdrawn and prompt allowance of this application is respectfully requested. If the Examiner feels that prosecution of the present application can be materially advanced by a telephonic interview, the undersigned would welcome a call at the number listed below.

Respectfully submitted,



John S. Parzych  
Reg. No. 52,097  
(612) 492-7279

Customer No. 22859  
Fredrikson & Byron, P.A.  
200 South Sixth Street, Suite 4000  
Minneapolis, MN 55402-1425 USA  
Telephone: (612) 492-7000  
Facsimile: (612) 492-7077

4292400\_1.DOC